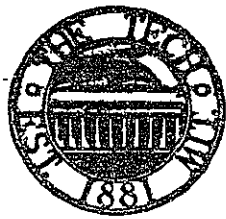


# The Tech



OFFICIAL NEWSPAPER OF THE UNDERGRADUATES OF MASSACHUSETTS INSTITUTE OF TECHNOLOGY

VOL. LXXII, NO. 32 CAMBRIDGE, MASS., FRIDAY, OCTOBER 17, 1952 5 CENTS

## M. I. T. Seeks To Meet Technological Shortages

Although the shortage of engineers and scientists, not only in the United States, but throughout most of the world, continues to be critical, increasing enrollment of students in science and engineering indicates the tide is turning, Dr. James R. Killian, Jr., President of the Massachusetts Institute of Technology, said in his annual report to the Institute's Corporation, made public today.

Modern society requires, Dr. Killian said, an increasingly greater proportion of its workers to be scientists and engineers in order to carry on its work and to maintain and advance its health, its wealth, and the general welfare of mankind.

Dr. Killian stressed in the report the responsibilities of M.I.T. in the face of this world shortage of scientists and engineers, and called attention to some of the ways in which the Institute has sought to meet these responsibilities.

"In the autumn of 1950," said Dr. Killian, "the national freshman enrollment in engineering schools dropped eighteen per cent, while the cumulative decline in enrollment was pointing to an output in 1954 which would be substantially less than the output of the engineering schools before World War II."

Industry, government, and education have joined in a program to acquaint the public with the national shortage and its hazards. The results are encouraging. In the fall of 1951 the overall nationwide increase in freshman engineering enrollment was over nine per cent.

A check of six widely-distributed engineering institutions just completed shows that the average increase over last year in the number of applicants has been thirty-seven per cent, and the increase in freshman registration at these institutions this fall is twenty-three per cent. The Institute's own entering class of 943, chosen from a total of more than three thousand applicants, is the largest in its history. Compared with the last normal year before World War II the Institute's total student body has increased by fifty-seven per cent, the undergraduate enrollment having increased thirty-three per cent and the graduate enrollment 139 per cent.

(Continued on Page 3)

### GRAD HOUSE DANCE

The Graduate House will hold an acquaintance dance from 8:00 to 12:00 p. m., October 17, 1952, in the Campus Room. Tickets priced at \$1 each are on sale at the Graduate House desk. This dance is open only to graduate students.

## Hunter Paper Museum Passes Into Thirteenth Year At Tech

By Frank Sarno

The Dard Hunter Paper Museum, frequently described as the "World's Greatest Museum of Paper," passed into its thirteenth year here at the Institute. Situated in the basement of the Charles Hayden Memorial Library and accessible through the Exhibition Room, the museum is used every year by classes from the Graphics Art Department of Harvard, the Botanical museum of Harvard University, students from Simmons College, Boston University Art Schools, Lowell Textile Institute and by various workers in graphic arts. The museum has also been used in motion pictures devoted to the art of paper making.

(Continued on Page 8)

## Dr. John Buchanan Named As Head of New Bio Division

Dr. John M. Buchanan, now Professor of Physiological Chemistry at the University of Pennsylvania, has been appointed professor and head of a new Division of Biochemistry in the Department of Biology at the Institute beginning July 1 of next year.

Creation of the new division, which was announced last night by Dr. George R. Harrison, Dean of the M.I.T. School of Science, marks an important extension of the Institute's activities in the biological field. The new group will operate as an autonomous unit within the Biology Department, closely correlated with the other activities of the department—particularly in the fields of general physiology and biophysics.

The new division, according to Dean Harrison, will be responsible for teaching and research in biochemistry at all levels—undergraduate, graduate and post doctoral. Its members will work in cooperation with the faculty of the Departments of Chemistry and Food Technology, where closely related activities are already underway.

Housing for the Division of Biochemistry will be provided on the sixth floor of the new John Thompson Dorrance Laboratories of Biology and Food Technology. Plans are now being made for the special equipment and facilities which will be needed by the enlarged staff expected to be active in the division by the fall of 1953. The installation will be completed by the time Dr. Buchanan takes up residence.

In its research program, the Division of Biochemistry is expected to give special emphasis to studies of the growth, structure, and reproduction of cells which are the ultimate building stones of all living matter. This will include the synthesis of a number of important biological compounds.

Commenting on Dr. Buchanan's appointment, Professor Francis O. Schmitt, head of the Biology Department, said "Professor Buchanan's

(Continued on Page 3)

## Second Annual Leadership Conference Held To Discuss Student Government; Reorganization, Student Apathy Noted



Members of the Institute Committee gather at one of several discussions at annual leadership conference.

General problems of student government were the topics of discussion at the second annual Leadership Conference sponsored by the Institute Committee. The conference was held at the New Ocean House in Swampscott, Massachusetts, last Saturday and Sunday.

Members of Institute Committee and several members of the faculty attended the conference, which consisted of panel discussions, addresses by President James R. Killian and Dean Edward L. Cochrane, and general discussion meetings.

The purpose of the meeting was to improve the relationships between the students at the Institute, as represented by Institute Committee and activity heads, and the Institute itself, as well as to discuss methods of handling various problems which face activity leaders.

### Cochrane Delivers Keynote

The conference opened at 11:00 a.m. on Saturday with registration and the assignment of rooms to those participating. At 12:15 p.m. luncheon was served and an introductory address was given by Professor Alex Bavelas. Dean Cochrane then delivered the keynote address. Following this, two simultaneous panel discussions were held. Panel 1, "The Theory of Student Government," was led by Allen Hoffman, John Polk, Mark Schupack, and John O'Donnell. The discussion was limited to three topics: 1) Is the type of student government at M.I.T. the most effective government at M.I.T.? 2) What is the authority of the Institute Committee in government at M.I.T.? 3) What is the place of the student in policy-making at M.I.T.? It was decided by the majority of the panelists that the present Institute Committee was very effective and representative of the student body. Other issues discussed included: corporation policy with regard to student activities; the autonomy of student government at the Institute; the areas of action of Institute Committee, and its authority

## Last Acquaintance Dance of Year Will Be Given By Catholic Club

The Nu Tones will provide an intermission supplement to Hal Reeves' Orchestra tonight in the last Technology acquaintance dance of the season. A six piece combination headed by Jahn Gahrn, the Nu Tones are noted for varying their methods of entertainment.

Sponsors, the Catholic Club, promises this dance to be their "most" spectacular in many years. Four hundred girls from twenty-four of Boston's school will be on hand to help perpetuate the reputation of All Tech Acquaintance Dances of past years. It should be noted that, though the Catholic Club sponsors this dance, no preference was given to Catholic girls in the distribution of invitations.

John Brady, chairman of the dance, has promised that several prizes will be awarded to couples during the evening.

The decorations committee, headed by Roman Chapelsky, has been working diligently to provide a unique motif which will dress up Walker to its finest. Tickets are \$1, a reduction from their cost for this dance last year.

## Scholarship Award Of I.F.C. National Presented By Farrell

At a meeting held on Thursday, October 9, at the Hampton Court Hotel, Mr. Edward Farrell, '20, Vice President of the Sigma Chi National Foundation, presented the IFC with the National Foundation Award for scholarship.

The foundation was set up fifteen years ago by John Towers, now an insurance executive, to provide scholarships and libraries for fraternity members. It now has over a half-million dollars.

In a 1951 poll, the Foundation found that of 3500 fraternity chapters in America, only 605 had scholarship records equal to or above their school average. In recognition of good fraternity scholarship the Foundation has presented thirty-five trophies to IFC conferences, to be given by these conferences to the chapter with the highest rating. Fifteen members of Alpha Theta chapter of Sigma Chi contributed funds for this trophy.

Chairman Sidney Hess, '53, introduced Dr. James R. Killian, Jr., who thanked Mr. Farrell and the Foundation for the award and congratulated the IFC on its accomplishment. He said that the fraternities have the best opportunity to improve scholarship.

Dean E. Francis Bowditch presented the trophy to Sigma Alpha Mu for the year 1951-1952. Larry Z. Isaacson, president of the chapter, accepted it. Runners-up were Beta Theta Pi and Pi Lambda Phi. They and the chapter which improves most during the first term will receive plaques at a later meeting.

## Dormcom Issues Open House Rules And Lounge Report

The Dormitory Committee recently published a new set of Open House Rules to be enforced in the dormitories. While most dormitory residents are now familiar with these new rules, the report which led to their adoption has not been made public. This report was prepared by a subcommittee, appointed by the Institute Committee to study the whole situation concerning Open House Rules. The report gives a short history of the Open House situation during the last five years, emphasizing that the rules have often been ignored in recent times. However, the committee feels that the present rules, with their present method of enforcement, should be continued, in light of the following factors: 1. The rules can be enforced if enough students believe in their merit. 2. The Class of 1952, which contained the most frequent violators, has been graduated. 3. The students themselves, rather than a higher authority, should govern in their own community.

To supplement the rules now in force, the committee outlined the following program: 1. All students should be informed of the exact

(Continued on Page 5)

## Army Intelligence Seeks M.I.T. Juniors In Special Branch

Colonel Charles F. Baish announced on his return from the first Conference of Army Professors of Military Science and Tactics that the Department of the Army has opened reserve commissions in Military Intelligence to ROTC Juniors.

The Strategic Intelligence Branch has openings for transportation and electrical engineers with a fair language proficiency, while the Photo Interpretation and Technical Intelligence has positions available for geology, architecture, civil, chemical, electrical, mechanical, and industrial production engineers without language proficiency. Applicants for these assignments must be Juniors, nineteen years of age, in one of the six technical army ROTC units at the Institute. All interested are encouraged to contact their ROTC unit instructor. Only a limited number of applicants will be accepted.

Colonel Baish pointed out that "This is another example of desire of the department of the army to place qualified ROTC graduates in

(Continued on Page 5)



Two students join the many who annually visit the unique Dard Hunter Paper museum

The Tech

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NO. 32

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Editorial

AND NOW OLEO

There comes a time when the most well meaning beast of burden slips up and takes a shot of stimulants to restore its energies. We take the liberty of placing the Institute Dining authorities in the role of the beast of burden—which they will not mind, we suspect—and we venture to suggest that it is time for that stimulant.

Complaints about the quality of food in Walker Memorial used to be very numerous, but they decreased last term as quality of food and eating environment improved considerably. However this term the situation has worsened noticeably.

The decision to substitute oleo-margarine for butter in all Institute dining halls is the most recent source of dissatisfaction. It is asserted that the cost of providing meals has, since last term, risen to such an extent that expenses had to be cut somewhere so as not to have to increase prices of meals.

We appreciate these difficulties. However we question the timeliness and the common sense of the solution. The Institute dining authorities are struggling to popularize the common meals systems at the Institute. Yet when it comes to making a decision between several available ways of cutting costs, they choose one which is psychologically the most deplorable.

This is the major complaint. It is prince in a realm which includes stale rolls posing as fresh ones; prepared dishes lying on the serving counter at noon-rush hours, cold by the time they are served; remarkably little initiative in the introduction of new items on an increasingly tedious menu; no opportunity—so far as we know—of substituting sandwiches for a hot meal at lunch on the commons system; and finally, a conspicuous decrease in the size of portions.

We call these complaints, voiced in many quarters, to the attention of the dining authorities not in an attempt to detract from their competence, which is considerable. We are also fully aware of the financial difficulties which they have to face. But we feel none the less that the existing defects can be fairly easily remedied; and we would point out that to have them eliminated is just as much in the interest of the dining authorities as in those of the students.

LEADERSHIP CONFERENCE: OUTCOME AND IMPORT

Why should the elaborate staging of a Swampscott Conference have been required to establish the common recognition of the need for leadership? The need should have been obvious.

On the level of student activities and student government, does not student autonomy stem from the ability of students to govern themselves effectively? The burden of proof seems to rest with the self-adjudged leaders of men who would be at the helm.

The techniques of leadership and problems related to student government were a fine bill of fare for those at Swampscott. Perhaps, when the newly acquired *esprit* has divorced itself from the clinical *sang-froid* of the discussion panel, we will see the full realization of student government bringing the responsibility of allegiance to this Institute, to its students, its faculty, and its alumni. Only by such realization and its attending self-dedication can student government ever hope to maintain its own, despite the most optimistic conjectures.

The fact of the Leadership Conference has evinced, for students, faculty and alumni alike to see, the effort of student government to improve itself; and further, from the seriousness in which faculty participation was given, the esteem in which the Institute holds Student Government. It is only through such confidence and autonomy that Student Government can be expected to carry out the tasks expected of it.

It is to be hoped, also, that the things which those who attended the Conference learned there will help Instcomm to find a more effective way of justifying its existence in the eyes of the student body.

The Leadership Conference has brought forth the spark of realization of mutual responsibility; it will have served well if it has also produced the allegiance of the *few* present to work for the common good.

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through the mail

to the Editor of THE TECH:  
As a recent transfer to M.I.T., I am shocked by the narrowness of the representative Tech student. I commend to your — and I hope your readers' — attention, the following thoughts stated by Dr. Albert Einstein in a recent interview (with the *New York Times* at his office in the Institute for Advanced Study at Princeton University, where Dr. Einstein is Professor Emeritus of Mathematics and Theoretical Science):—  
"It is not enough to teach man a specialty. Through it he may become a kind of useful machine, but not a harmoniously developed personality. It is essential that the student acquire an understanding of and a lively feeling for values. He must acquire a vivid sense of the beautiful and of the morally good.  
"Otherwise he—with his specialized knowledge—more closely resembles a well-trained dog than a harmoniously developed person. He must learn to understand the motives of human beings, their illusions and their sufferings in order to acquire a proper relationship to individual fellow men and to the community.  
"These precious things are conveyed to the younger generation through personal contact with those who teach, not—or at least not in the main—through textbooks. It is this that primarily constitutes and preserves culture. This is what I have in

AFTER HOURS

DANCES

FRIDAY, OCTOBER 17  
M.I.T.—The All Tech Acquaintance at 8 p.m. in Morriss Hall; two orchestras, Hal Reeves and the Nu Tones. The one dollar admission will include entertainment and refreshments. Four hundred girls are expected from just about every girls' school in the metropolitan area.

SATURDAY, OCTOBER 18  
M.I.T.—One of the traditional I.D.C. by the Informal Dance Committee of the Walker Student Staff—the first one of the year. It will be held from 8:30 to 12 at Morriss Hall. Admission will be one dollar per couple.

THEATRE

Boston Opera House—Joan Blondell in "A Tree Grows in Brooklyn."  
Colonial—Last performance tomorrow of "Jane," with Edna Best, John Loder, and Howard St. John. On Monday, Van Heflin takes over in the Pulitzer Prize winner, "The Shrike."  
Majestic—Cornelia Otis Skinner solos in "Paris '90." Last performance Saturday.  
Plymouth—Here "The Deep Blue Sea" stars Margaret Sullivan and Alan Webb.  
Shubert—Chartock's Gilbert and Sullivan Company will perform "Iolanthe" tonight and twice tomorrow, winding up their Boston engagement. Stars include Martin Greene, formerly with the D'Oyly Carte troupe. Monday and Tuesday the Dancers of Bali will perform their unusual routine as featured in Life Magazine. Tickets are available at the theater.

MOVIES

Beacon Hill—The classic British spectacle "Tales of Hoffmann," now at "popular" prices. There is also a technicolor short on "Toulouse-Lautrec."  
Exeter—The melodramatic British "Stranger in Between." Along with it is the celebrated cartoon in the modern manner "Gerald McBoing Boing."  
Kenmore—O'Henry's "Full House" has really been filling this little theater for the last week. This version includes all five of the stories and the twelve original stars.  
State and Orpheum—The third week of Robert and Elizabeth Taylor in "Ivanhoe."  
Metropolitan—Marilyn Monroe, among others, in "Monkey Business."  
University—Lana Turner is featured at Harvard Square in "The Merry Widow," in technicolor.  
RKO Boston—Willie and Joe return in "Back at the Front."  
Paramount and Fenway—Anne Baxter and McDonald Carey in "My Wife's Best Friend."

MISCELLANEOUS

Concerts—Claudio Arrau plays at 3:30 Sunday at Jordan Hall as part of the Aaron Richmond Celebrity Series. The Boston Symphony will feature Bach and Beethoven in its usual Friday afternoon and Saturday evening concerts.  
Ballet—A company including many ex-stars of the Ballet Russe de Monte Carlo is performing a new "Streetcar Named Desire" ballet as well as Tchaikovsky. Evenings at 8:30 and Saturday matinee at John Hancock Hall.  
Politics—F. D. R., Jr. will speak at a Stevenson for President rally 8:30 tonight at Brattle Hall here in Cambridge.  
Sports—Tickets are available until 5 p.m. today for the Colgate-Harvard game tomorrow afternoon at Harvard Stadium.

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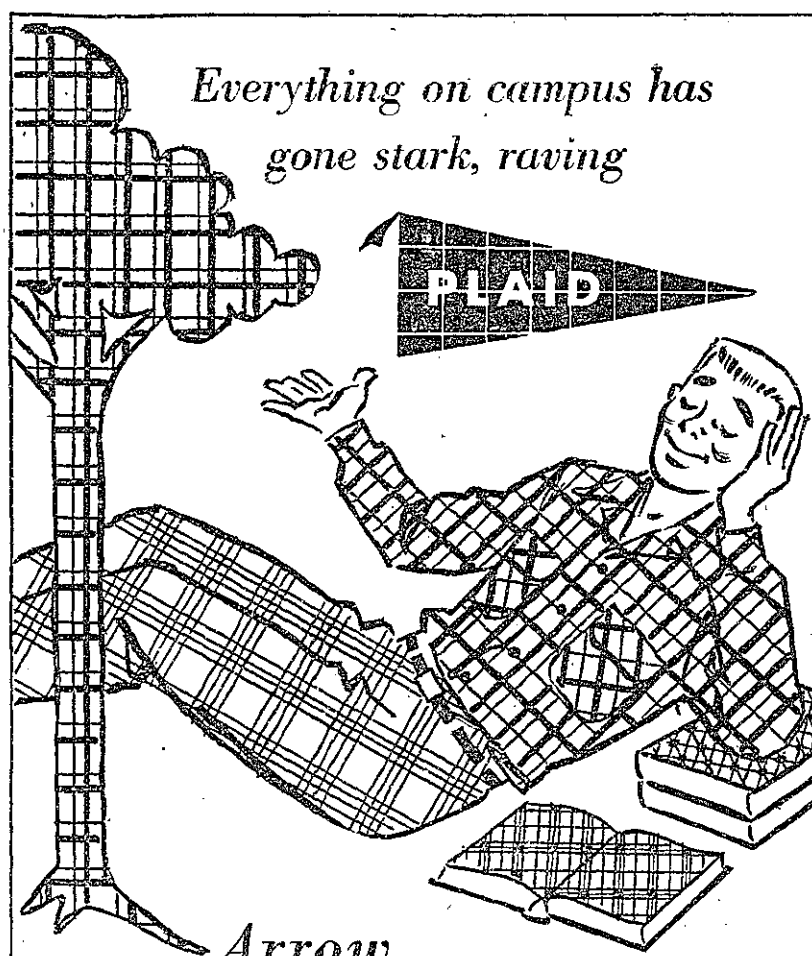
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### Buchannon Appointment

(Continued from Page 1)

training and experience especially qualify him for this important post at the Institute. He is widely known for his researches in the biosynthesis of biological compounds, particularly the purines and glycogen, and he has also made important contributions in the isolation and purification of enzymes."

All undergraduate students in the Biology Department will take at least one course in the Division of Biochemistry and graduate degrees in biochemistry will be offered in connection with the division's research activities.

Born in Winamac, Indiana, Dr. Buchanan attended high school in South Bend, Indiana, and was graduated in chemistry at DePauw University, Greencastle, Indiana, in 1938. He received his Master of Science degree from the University of Michigan in 1939 and the Ph.D degree in biochemistry from the Harvard University Medical School in 1943.

After three years as instructor and assistant Professor in Biochemistry at the University of Pennsylvania Medical School, he studied for two years, as a National Research Council Fellow, at the Medical Nobel Institute in Stockholm, Sweden.

Returning to the University of Pennsylvania in 1948, Dr. Buchanan was made Associate Professor in 1949 and Professor in 1950. He is a member of Sigma XI and of the American Society of Biological Chemists and was the recipient, in 1951, of the American Chemical Society's Eli Lilly Award in Biological Chemistry.

### Killian Report

(Continued from Page 1)

Dr. Killian noted that while M.I.T.'s growth in graduate students has been somewhat above the national growth, there has been an increase in graduate study for the country as a whole. "This," he said, "reflects the growing maturity of our schools of science and engineering along with the increasing demand on the part of industry and research institutions for men and women with advanced, specialized education."

He directed attention to significant shifts which have occurred in the distribution among the various courses of study at M.I.T. During the period from 1939-40 to the academic year 1952-53 the Institute's enrollment had increased fifty-seven per cent. The enrollment in engineering courses showed an increase of forty-three per cent and in science 113 per cent. In architecture and city planning the increase was ninety per cent, while the field of industrial management had an increase of twenty-nine per cent. Interest in electrical engineering during the thirteen-year period was indicated by an increase of over one hundred per cent, while registration in mathematics grew from forty to 147, and physics from 152 to 514 students, both over two hundred per cent. These increases reflect, Dr. Killian said, national trends in industrial interests and demand, as well as the Institute's developing programs in these fields.

In recommending re-establishment of a stabilized enrollment policy at M.I.T., Dr. Killian urged that primary attention be given to the quality of enrollment rather than any increase in numbers. "One of the hazards arising out of the current acute demand for scientists and engineers," he said, "is the temptation to permit educational standards to drop in order to increase enrollments. This is not the way to advance our science and engineering or to serve industry. Even though the downward trend of enrollment in engineering has been reversed, there should be no letup in our national effort to insure an adequate flow of young people of breadth and competence in science and engineering."

"The evidence seems to be clear," he said, "that for the long pull the demand for scientists and engineers will be greater than the supply provided for by the present and foreseeable level of enrollments and that we should not be governed in our planning by the possibility of any temporary short-term fluctuations in demand."

Discussing the Institute's educational program Dr. Killian stressed the importance of providing a program that will attract men with creative ability, leadership potential, and public spirit. In order to provide the means to maintain such a program, he said, the Institute has made long-range plans for funding its independence and its future, and provision for new education and research facilities in order to realize new educational opportunities. In recent years, he noted, there has been some tendency in the United States for undergraduate education to be neglected in favor of the more attractive opportunities of advanced teaching and research.

"At M.I.T.," he said, "we have always felt the undergraduate school to be the very core of our total program. Within our present phase we are taking pains to make sure that we are still making creative contributions to the art of undergraduate teaching and that we are providing the best kind of environment and incentive to the teacher who teaches undergraduates with scholarship, professional standards, and inspiring skill. The teacher who can set a young man's mind on fire is an educational institution's most valuable asset."

There is a growing conviction that one of the best ways to promote effective student development and effective teaching is to give maximum choice and initiative both to the student and to the teacher. It is hard for either student or teacher to do an inspired job with a cut and dried course. Both need an opportunity to approach a given objective in their own individual way. We are, therefore, examining ways in which we can make less rigid the strict schedule of our first two years without sacrificing the advantages of the present program."

Speaking of opportunities for creative work, Dr. Killian said, "Another concept in undergraduate education which has been examined and advanced during the year is what we call the M.I.T. Project Plan for Professional Education. By bringing down into the undergraduate school more of the creative research and professional attitude of the graduate school, we have been seeking to do a better job of teaching engineering and science to undergraduates. We have been doing this in part through the use of projects, as, for example, a plant-design problem undertaken by a team of students and requiring the use of judgment in regard to the many different technical and economic aspects of the problem. Another approach, aided by industry, has been to give a class of students the opportunity to redesign an appliance or piece of equipment and to have their designs built and tried out. Our aim now is to find an undergraduate equivalent for the creative experience of the graduate student; to give the undergraduate an opportunity himself to be

(Continued on Page 5)

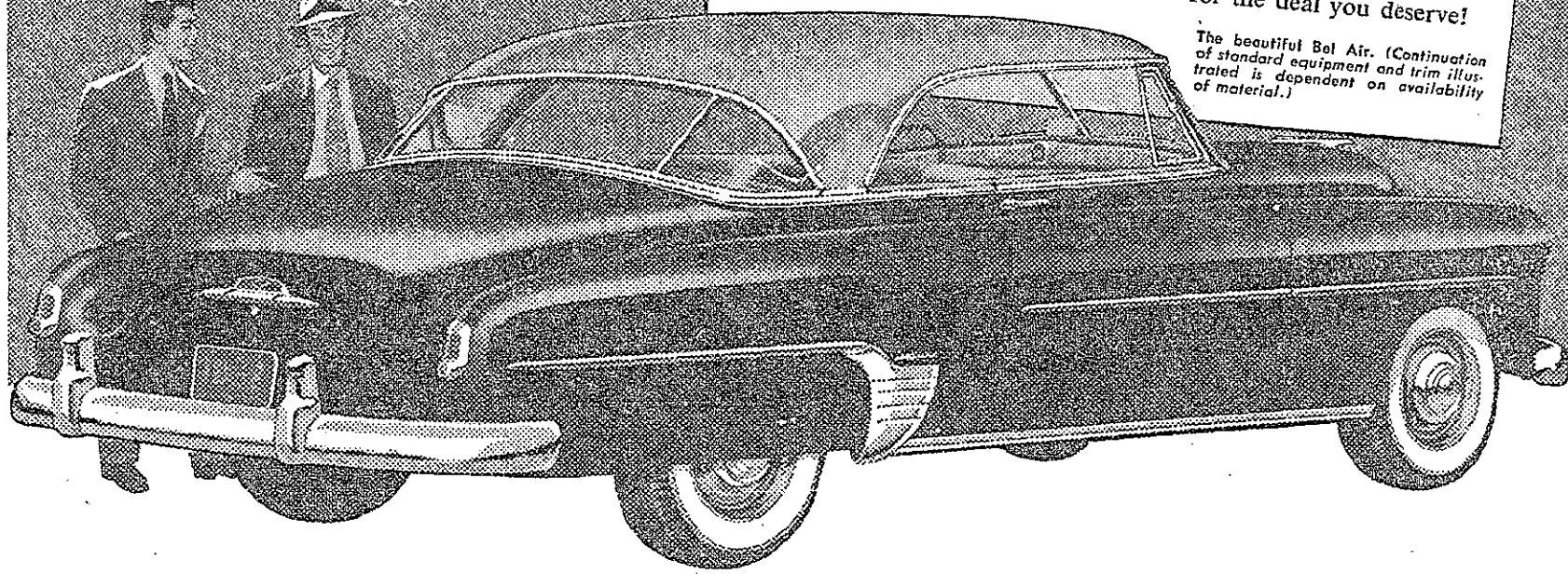
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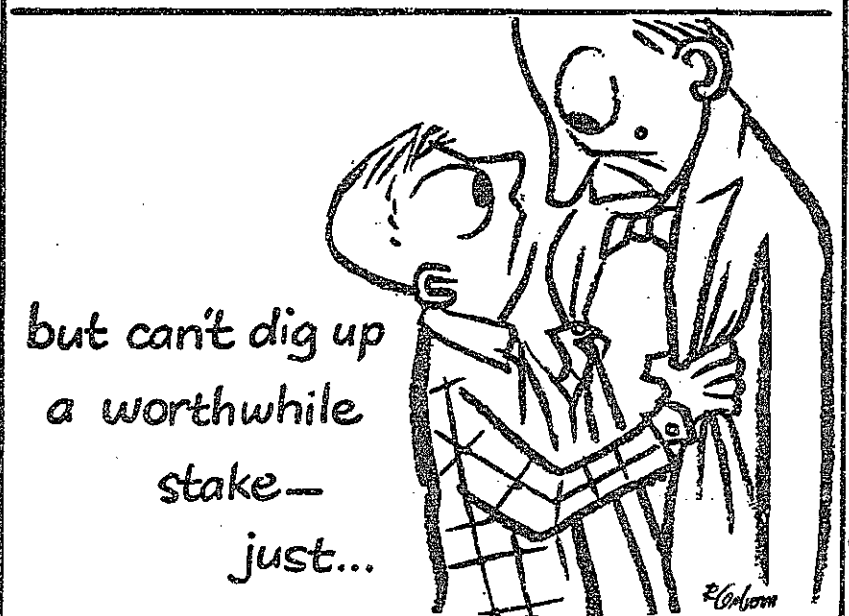
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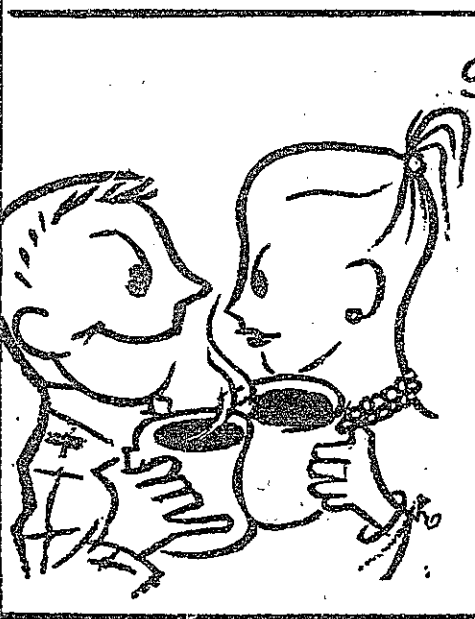
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The Stockholders at their annual meeting on Wednesday, October 1st, made the following nominations for Stockholders, Officers and Directors:

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STOCKHOLDER: to hold office for three years

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From Harvard Class of '55	John Timothy Anderson

## Leadership

(Continued from Page 1)

and responsibility; the problems with which Institute Committee should deal; and possible changes in the structure of the Committee.

### Types of Leadership

Panel 2, "General Leadership Qualities," was led by Professor John T. Rule, Malcolm Blair, Bruce Murray, and George Stevenson. The panel discussed the subject from four standpoints: leadership required in a military situation where strict obedience to duty is required; leadership in a group of very intelligent and well-educated people—all on the same level; leadership of a group of unintelligent men who were doing a dirty job; and leadership in a volunteer group. The panel decided that a leader must respect his men and treat them as individuals, understand what the group is doing and why, co-ordinate a suitable communication system between members of the group and himself, acquire the confidence of his men, create interest in the work to be done and be able to do his fair share of the work along with the men.

Following the two panels, a general meeting was held at which the panel leaders handed in reports on the discussions. At 6:00 p. m., dinner was served, followed by an address by Dr. Killian. After dinner an informal discussion, led by Marion Manderson, President of the Institute Committee, concerned itself with the best method by which student government can function, and recommendations for improving student government at the Institute.

### Student and Administration

Sunday's half of the conference opened with breakfast at 8:00 a. m., followed by two panel discussions. Panel 3, "Responsibility of Student Activities to the Administration and to the Student," was led by Mr. M. G. Kispert, Jay Koogle, Charles Homsey, and Bennett Sack. The problem of relations between administration and activities was discussed, and it was decided that the biggest trouble here was with regard to communication. The question of extending faculty or alumni advisors to all groups was brought up. The problems with regard to relations between student government and activities were also discussed. A method of bringing Class A and Class B activities closer together was sought; suggested were conference-type meetings, and a bet-

(Continued on Page 5)

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Killian Report

(Continued from Page 3)

creative in terms of his stage of development. "During the past year, after extended discussion by appropriate committees," Dr. Killian said, "the Faculty approved a new four-year integrated program in general education. This core curriculum consists of a two-year introductory course required of all freshmen and sophomores followed by an elective sequence in the junior and senior years in which students will have the opportunity to elect a combination of three subjects in one of eight fields together with a fourth, or distributional, subject in a different field. Under this plan eight terms of general education are required, although the student is free to elect two additional terms.

"The required two-year course is designed to give the student an introductory knowledge of important issues, ideas, periods and events of the past, selected on the basis of their relevance to the world today. It will emphasize the interrelation of the various humanities and social sciences as elements in human experience and introduce the student to the process of critical thought as applied in the humanities and social sciences. Practice in written and oral expression is an integral part of the basic program.

"Specialization in the third and fourth years may be in one of the following fields: history of ideas; political, social, and economic history; literature; music; economics; political science and international relations; labor relations; and psychology.

"The significant aspects of this new program, other than its carefully planned content, are the high intellectual standards required and the rich fare available at the Institute for our students. The strength of this program in general education, coupled with the general educational values of our professional subjects themselves, combine to afford our students an undergraduate education at once deep and broad. Because of our fine faculty in the humanities and the social sciences, we have the resources of a strong liberal-arts college to couple with the professional standards and motivation of our Schools of Science, Engineering, Architecture, and Management. This combination, as the Institute has demonstrated in the past, has great power and is peculiarly appropriate to meet the educational needs of our modern industrial society."

Dr. Killian called attention to the opening this autumn of the Institute's School of Industrial Management with a graduate enrollment of forty-eight. The undergraduate division of the school, made up of students in the course in business and engineering administration, has a registration of two hundred. The school, still in the organizational stage, will have a faculty of twenty members and an additional staff of eighteen.

"In developing the new School of Industrial Management," Dr. Killian said, "and in selecting its faculty, we have sought to avoid duplication of existing schools of business. Repeating the old patterns would have been the fast and easy way to start the school. We have chosen the slower, more difficult path of re-examining the premises of management education and of seeking a fresh approach. From its beginning, the program of the new school should represent creative thinking about management. Plans are now under way to devise new approaches and new content for important segments of the curriculum."

The need for more funds for student aid was emphasized in the president's report. "The inadequacy of undergraduate scholarships," Dr. Killian said, "reflects a national inadequacy in the scholarship funds of schools of engineering and institutes of technology. These institutions are strikingly poorer in scholarship funds than the top liberal-arts universities. In my judgment this discrepancy works to the disadvantage of the engineering profession, and it has played a part in the declining enrollment in engineering. We wish to be sure that exceptional young people interested in these fields are not denied a superior education for financial reasons. Our undergraduate scholarship awards should be increased by at least \$200,000 per year within the next five years."

Reporting on the finances of M.I.T., Dr. Killian called attention to the fact that since 1949-50 the Institute's operating expenses per student have risen more than eighty per cent, and they are still increasing as the cost of living rises. This steady upward trend in expenses has required the Institute to increase its tuition from \$800 to \$900 per academic year, effective July 1st, 1952.

The additional income received from the increase in tuition will be devoted in part to increasing scholarship funds, but mainly to cover necessary increases in salaries and wages, already given, to enable our personnel to meet rises in the cost of living and to enable the Institute to maintain an outstanding faculty. Even with the increase in tuition it will be necessary for the Institute to depend heavily upon gifts for current expenses, a condition facing all endowed institutions. Our fund-raising activities must be steadily directed toward increasing the Institute's permanent funds.

The growth of the Institute's permanent funds has been greater than the growth of its endowment funds. In 1939 endowment represented ninety per cent of its total funds; in 1952, only seventy-two per cent. The growth of these funds needs to be accelerated to bring them more in line with our present size and responsibilities. During 1951-52 the total of gifts, grants, and bequests was \$6,935,000, of which \$1,998,000 represented maturing pledges to the recent development campaign.

Dr. Killian reported that the Committee on Development had validated a long-range objective for new capital resources of some \$20,000,000 for additional permanent funds, and \$12,000,000 for special facilities over the next few years.

Calling attention to the need for well-educated scientists and engineers in the undeveloped regions of less highly industrialized nations, Dr. Killian said that M.I.T. has a responsibility to the international community to furnish educational opportunity to men from other countries, to the limit of its ability. "In recent years," he noted, "M.I.T. has enrolled the highest percentage of foreign students of any college in the United States. Last year over ten per cent of our student body came from other countries. In addition the Foreign Student Summer Project brought eighty-one men and women from thirty-five nations to the Institute for research and summer study." He added that new regulations make it possible to increase the number of foreign nationals who come to the Institute as graduate students. Last year, at the request of the State Department, M.I.T. joined in a program of technical assistance to the College of Engineering of the University of Rangoon in Burma. Under this program the Institute agreed to recruit up to six staff members for that university. This staff will not only teach but will also aid in the reorganization of the engineering program. Professor Murray Horwood has been granted leave of absence to direct the project at Rangoon this year.

Plans for the Institute's new auditorium are now complete, and it is expected construction of the new building to seat twelve hundred will be started soon. The building will have space for a small theater and a devotional chapel, and will occupy a plot of the Institute's land west of Massachusetts Avenue.

Dormcom

(Continued from Page 1)

nature of the rules, including the reason for their existence, and the necessity for observing them. 2. Small group meetings on each floor of the dormitories are recommended as a device for getting the story across. 3. A yearly review of the situation should be made and the program changed accordingly. 4. Adequate lounge space should be made available in each dorm for receiving and entertaining guests. The committee feels this last recommendation is most important. In line with their suggested program, the Master suite lounge in Baker House is now being refurbished by the Institute. Their report also outlines a tentative plan for lounge construction in the other dormitories.

Candidates for the varsity basketball team are requested to report in Walker Gymnasium at 5 p. m. today.

Patronize

The Tech

Advertisers

COOKIES

Cookies, tarts, and small cakes will be on sale Wednesday morning, October 22 in Building 10. The sale, which is being sponsored by the Westgate Cooperative Nursery School, will begin at 9:00 o'clock and last until all cookies are sold. All bakery products will be home-made by members of the Nursery School Mother's Club. Polly Harms, Nursery School Chairman, hopes you will keep this date in mind and stop by for a snack between classes. Come early for best selection.

Leadership

(Continued from Page 2)

ter understanding of Class B activities by Class A activities.

Faculty Advisors Considered

Panel 4, "Continuity of Organizations," was led by Robert Briber, Robert Ebeling, Thomas Faulhaber, and John Peterson. This panel was concerned with the problem of how information and experience of officers of organizations are passed on to their successors. Five methods were discussed: 1) Early changeover so that the old officer would be around for a full term to help his successor; 2) Giving Junior Boards more power;

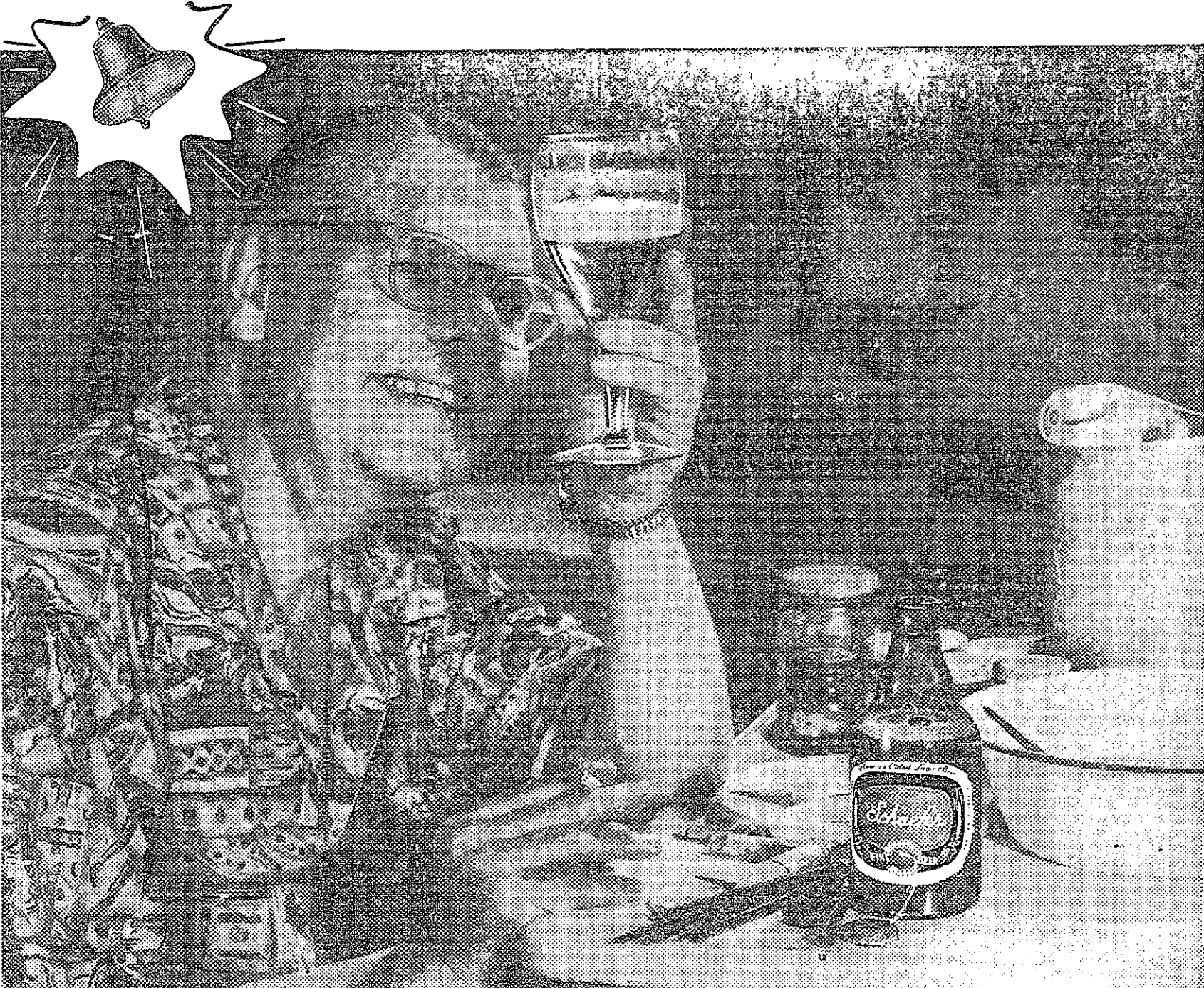
3) Reorganization of the Junior Board so that it is composed of both juniors and seniors; 4) Have activity chairmen write reports; and 5) Have faculty advisors. The Panel decided that an early change over to new officers was a good idea; that written reports were a very good method of passing on technical information; that faculty advisors were good, but their value depends on the activity and on the advisor himself; that a composite junior board is a fair idea; and that giving junior boards more power might lead to very bad mistakes. The panel emphasized the facts that continuity of information should pertain only to technical information, and not matters of policy.

After lunch, two final panel discussions were held. Panel 5, "Problems of Apathy as pertains to the Living Groups," was led by Dr. D. L. Farnsworth, Vincent Bronson, Robert Esch, and Albert Ward. The panel considered apathy both towards and within school activities, lack of interest in school and class elections, lack of interest and participation in school athletics, and lack of a general intangible school spirit. The panel decided that the entire approach of both the Institute and activities should be made more informal, particularly to entering students and in the planning and operation of freshmen weekends; that many small contacts with the students, such as mailings, should be gradually humanized; that more school spirit could be created by means of all-school functions, and informal meetings among students and faculty or administration officials.

Responsibilities of Leaders

Panel 6, "Group Discussion Techniques," was led by Alexander Danzberger. Discussion centered on the difficulty of keeping to the point, individual roles of persons in a discussion, semantics, types of meetings, and two specific problems: selection of committees and stray elements in a discussion. It was decided that the leader was responsible for keeping the discussion on the subject at hand and for handling the semantics problem. Three types of meetings, parliamentary, directed and semi-directed, were defined. In general, it was decided that the leader of the discussion was responsible for the success of the discussion.

The conference closed with reports from the panels, dinner, and a general meeting in which leaders discussed plans of their activities for the coming year.



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It is brewed from the very finest of barley malt, grain and hops. And equally important to you who appreciate fine beer, it is brewed with the skill that is the heritage of 110 years of experience. We believe this better-than-ever Schaefer is the finest beer America has yet produced.



make it clear... make it

Intelligence

(Continued from Page 1)

allied fields where maximum use can be made of their technical training. This is another opportunity offered to all army ROTC Juniors to seek a commission in a field where direct use will be made of their training at M.I.T."



# COOP

## Patronage Refund

for the year ending June 30, 1953 is guaranteed at not less than 10% on cash purchases and 8% on charge—same rate as paid on purchases made during Fiscal Year ending June 30, 1952. Last year's Patronage Refund checks will be distributed at The Technology Store starting October 14, 1952.

### Reminder

Patronage Refunds are paid on purchases made in the Harvard Square Store by Tech Store Members. Use your charge account card if desired.

# The COOP

### Engineer Harriers Outrace Tufts 17-41; Frosh Gain Victory

Here at Franklin Park Saturday, the Beaver Harriers ran up a near perfect score against the outclassed Tufts team. John Avery and Jack Farquhar, both Tech men, raced across the finish line at the same instant, locking up first and second places. Hugh Nutley, also of the Beaver squad, grabbed the third spot while Jerry Tieman took fifth. The only fly in the ointment which prevented the perfect score was the showing of Christopher of Tufts, who came in fourth. The eighth to eleventh spots were also monopolized by men from Tech, as Martin Gilvar, Larry Berman, Ian Williams and Carl Swanson swept across the finish line.

#### Frosh

While the Varsity was running up a sensational score of 17-41, the Frosh came through with a perfect score. The freshmen are fast being recognized as some of the most promising crosscountry men. With the first five men tied for first and all of them Tech men, the frosh indeed pulled off a most amazing feat. The men who shared this honor were Jack Buell, Bill Fitz-Gibbon, E. M. Gearhardt, Dave Palamountain, and George Brattin. The top runner of Tufts was Hartley, who finished eighth.

Now that The Varsity and the Frosh have these two games under their belt, they are prepared to take on stiffer opposition next week in Brown and Holy Cross.

## Improved Soccer Team Scores First Victory Of '52 Campaign

The Beaver Soccer men scored their first victory as they came from behind to vanquish a scrappy team from Brandeis by a score of 3-2.

#### Rundown

Rafael Morales and Antonio Neves led the Techmen throughout the contest with aggressive offensive and sparkling defensive plays. Neves, goalie, proved to be the key man as he blocked shot after shot. Morales led the scoring with two goals.

The light blue of Brandeis took the lead as they caged a goal midway thru the first period. The score was tied at the beginning of the second half when Alvare Nieto slipped the ball past his rival goalie. Morales then came through with his first goal of the day to put the "Beavers" in front to stay.

Morales then drew applause from the small crowd as he eluded the Brandeis right defensive man and booted the ball into the net with his left foot from twenty yards out.

Although the deciding tally had already been counted, the light blue fought back and pushed across the final marker of the day at the end of the last quarter.

#### Riot

A small riot ensued during the contest when a Brandeis player insulted a "Techman." After a few blows were thrown the entire crowd entered the fray. Coach Ben Martin ended the excitement by retiring his squad from the field. Each team suffered one casualty.

#### Previous Defeat

On Saturday, October 12, the varsity soccer team suffered its first defeat at the hands of Trinity, 4-0. The victors jumped to an early 2-0 lead in the first quarter and were never headed. Tech put up a battle throughout the whole tilt but were not able to score. Several shots bounced off of the cross piece on top of the net but failed to enter it. Trinity sewed up the game in the fourth period by scoring two more security goals.

The hard fighting soccer team has not been supported to any great extent, although the contests are very well played. The largest crowd to date has been 100.


#### FOR SALE

Mahogany sectional bookcase, 4 sections, \$15. Mahogany armchair, \$4. Almost new darkroom photography equipment—half price. Sets of used law books. Call KI 7-5639 evenings.

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## BULLETIN!

### College students prefer Luckies in nation-wide survey!

A nation-wide survey based on actual student interviews in 80 leading colleges reveals that more smokers in these colleges prefer Luckies than any other cigarette—and by a wide margin. The No. 1 reason given for smoking Luckies? Luckies' better taste. What's more, this same survey shows that Lucky Strike gained far more smokers in these colleges than the nation's two other principal brands combined.

## Yes... LUCKIES TASTE BETTER!




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When you've a date and stay out late  
Her father may appear  
But offer him a Lucky Strike  
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Was cheered and feared alike—  
But Caesar never had the thrill  
Of tasting Lucky Strike!

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Available until October 27 at an introductory price of \$35.00.

## Miscues Cause Downfall Of Fighting Frosh Eleven

By Phil Bryden

The freshman football team was routed by Tufts 37-0, in an informal game at Medford last Wednesday afternoon. The larger, more experienced Tufts team capitalized on the numerous mistakes of the Beavers to run up the lopsided score.

### Rundown

The big Tufts line hit the Tech ball carriers hard, often causing them to fumble or pass wildly. Of the six Jumbo touchdowns, three came as a result of pass interceptions, and two more were due to fumbles. Despite the high score, the Tufts offense was not exceptionally good. They had practically no passing attack at all, and their ball carriers were often thrown for losses. However, the sloppy Tech play gave them many chances for scoring.

When they could hold on to the

ball, the Tech backfield showed to "advantage." Many times the Beaver backs slashed off big gains, only to lose the ball on a fumble or interception. The running of Becker and Roberts and the pass-catching of Gouhin highlighted the Tech offense. In the line, the play of Calvert and Sen at tackle was outstanding.

### Engineers Inexperienced

The Beaver's comparative inexperience and lack of practice contributed greatly to their downfall. Although they made many mistakes, the team looked fairly good and showed plenty of spirit.

This Saturday, the freshmen's field day rivals, the Class of 1955, will play the Thayer Academy football team, on the latter's home field. It will be the first game of the season for the Sophomores, who have looked good in recent practice sessions.

## Engineer Rugby Men Defeat McGill University By Score Of 3-0

In a hard fought game before a crowd of several thousand Canadians in Montreal this last Saturday, the Beaver Rugby Club defeated a strong McGill University team, 3-0. As McGill was undefeated in rugby last year, this victory was a very impressive one for the Techmen, and marked the first time that M.I.T. has defeated McGill on the Canadian's home field.

### Lose to Westmount

However on Sunday, the tired Techmen lost to a spirited and experienced team from the Westmount Rugby Club in Montreal by a score of 16-3, in a game highlighted by the spirited play of the Westmount backline.

### Players

The team this year has been bolstered by the addition of several experienced players, among them John Gam, from Australia, and Max Leloir, an Argentinian. Another new man, and a standout in Saturday's game,

## Frosh And Sophomores Make Ready For Coming Field Day Crew Regatta

For the past several weeks, prospective members of the freshman and Sophomore crews have been working out at the Boat House under the direction of Coaches Chuck Jackson and Dick Semple. About a hundred men are working out at the present time, over eighty of whom are freshmen.

Since members of last year's freshman eight are ineligible for competition in the field day events, both crews will enter the race with very little experience. In this respect, the freshmen hold the advantage, for they have many more men from whom to choose.

### Practice in Barges

Until a few days before the actual race, all practice will be done in the training barges, a pair of shells held together by a board for the coach to stand on and direct operations. Shortly before the race the crews will be permitted to row in the shells for time trials and actual experience.

This method is employed because the object of the freshman crew is not primarily to win the field day race, but to train men for freshman crew in the spring.

### Three-Quarter Mile Course

The race will be held on a shortened three-quarter mile course, starting in front of the boat house and ending just short of the Harvard Bridge. Although the inexperience of the crews has prompted one coach to say that he will be happy if his crew can make the starting line, the race should prove to be a good one.

### Sophs Hold Big Margin

In past field day races, the Sophomores held a big margin, having won twenty-two and lost only seven. Since the war, the freshmen have been able to win only once. However, with the great number of freshmen out for crew, the Sophomores are going to need more than a little luck to win this one.



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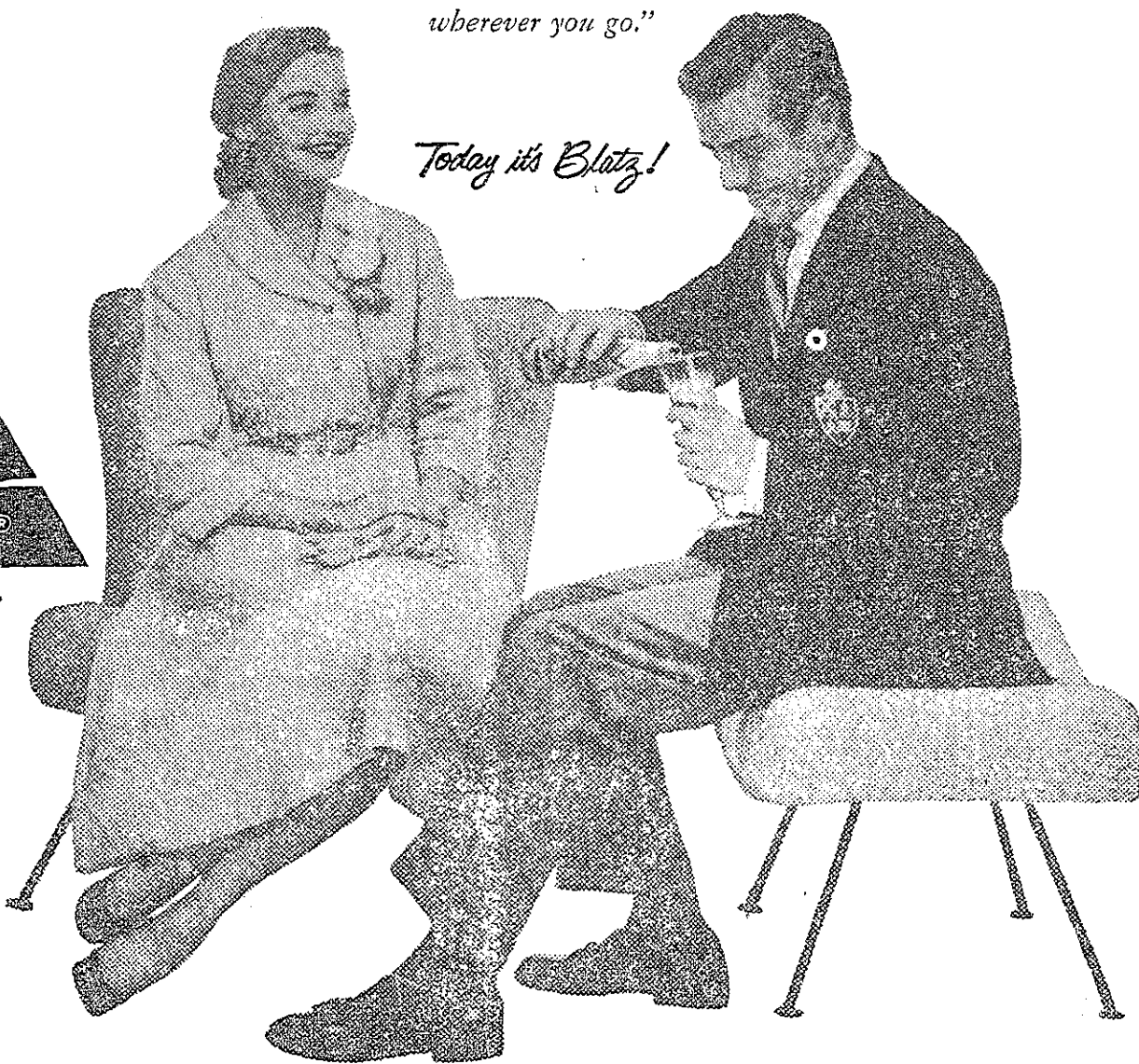
So wherever you are in this land of ours, lift a glass of Blatz tonight. When you do, you'll join the growing millions of Americans who sing:

*I'm from Milwaukee  
and I ought to know,  
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## Prof Livingstone Develops Advanced Accelerator Design

Professor M. S. Livingstone of the M.I.T. Physics Department has collaborated in the discovery of a radically new design principle for particle accelerators which is likely to revolutionize nuclear research. Since a synchrotron using the new principle will impart to particles ten times as much energy as they would get in conventional machines of equal cost, physicists will soon have available in the laboratory projectiles of much more energy than was attainable before. This is a forward step of great scientific importance, because further discoveries about the nucleus seem to depend upon bombarding it with very high energy particles.

Already Brookhaven National Laboratories plan to construct a 100 Bev. (billion electron volt) machine. If built, this giant will have a circumference of over a mile. UNESCO will construct in western Europe an international laboratory centered around a 30 Bev. synchrotron of the new type. A conventional 3 Bev. machine was originally planned.

Professor Livingstone conceived the basic outline of the new principle last summer when the Brookhaven staff undertook to give advice on how to reduce construction costs to the designers of the UNESCO laboratory. He got the idea while he was considering modifications of existing expensive machines. He then enlisted the aid of E. Courant and H. Snyder, theoretical physicists on the Brookhaven staff, in working out details of a practical machine.

Such a machine will have iron magnets of two different designs arranged alternately around a circle so they produce a non-uniform magnetic field through a large washer shaped region of space; when a charged particle goes around in this region, strong forces exerted by the non-uniform field will constrain it to move only in a small doughnut-shaped region. The cross section of this doughnut-shaped region is much smaller than was possible using previous magnet arrangements; consequently the particles need a smaller vacuum chamber to move around in.

Since the cost of magnets and of vacuum pumps goes up rapidly as the size of the vacuum chamber increases, a machine using the small vacuum chamber required by the new design will be much cheaper than one of conventional design which develops the same energy. An article by Courant, Livingstone and Snyder, which should appear in the December issue of *The Physical Review*, will discuss the principal in detail.

This development is not Professor Livingstone's first contribution to the field of particle accelerators. In the early thirties, he collaborated with

E. O. Lawrence of the University of California in the development of the cyclotron, and, from 1946 to 1948 he was director of the design group for the 3 Bev. Cosmotron at Brookhaven National Laboratories. In addition to his M.I.T. position, Professor Livingstone holds a part-time appointment at Brookhaven where he is working on the design of the projected 100 Bev. machine.

### Hunter

(Continued from Page 1)

The Museum was originally the idea of George Houk Mead who suggested that it be built in Chillicothe, Ohio, the home of Dard Hunter; but Dr. Compton hearing of the idea, suggested instead its establishment at M.I.T.

The material was first set up in the William Barton Rogers Building before Hayden Memorial was built.

The wealth of material includes many manuscripts relating to the manufacture of paper and paper products. One, an original application for a British patent dating back to 1788, definitely proves that laminated paper was employed for building purposes as early as the 18th century and is not a modern invention. There are exhibited documents dealing with paper making in Europe and America, original watermarks which run into the thousands, examples of paper

from every country and every period, ancient Oriental methods of reproduction, wood blocks, engraver's tools, prints and specimens of the very first printing on paper (707 A.D.). The museum would not have its present extensive material if it were not for the lifetime work put into it by Dr. Hunter, who has travelled more than a quarter of a million miles to such places as the Orient, Occident, Central America and Islands of the Pacific and Indian Oceans. Hardly a place that produced paper by hand during his years of travel was not visited by Dr. Hunter.

Yet the museum is only incidental to his real work, the writing of twenty-two books covering every phase of the art of paper making. The latest, "Paper Making by Hand in America" is probably the most interesting.

Dr. Dard Hunter has earned numerous degrees and has been honored with many more. It is fortunate his imminent retirement will not mean the discontinuing of his work nor the closing of the unique museum.

### Rugby

(Continued from Page 7)

is Chuck Johnson, former Wisconsin footballer, who drove over from the 20-yard line to score the game's only try and give M.I.T. the winning points. As the new players gain experience the Tech Rugby Club should field a very strong team that will hold its own against any team in the East.

### Editorial

(Continued from Page 2)

#### A Way Out of the Maze?

The situation in Hayden Library is probably not what one student described as, "an experiment in advanced psychology, with Hayden the maze and 5000 student rats." Nevertheless, circulation therein is becoming increasingly difficult. Maps directing students through obscure corridors over two floors to get to the music library, are masterpieces of confusion:

By now everyone realizes that Hayden is not the masterpiece of modern library design which the building was claimed to be, but rather a labyrinth the like of which has seldom been seen in recently produced architecture.

Are we going to live with these mistakes, attempting to patch them up by running strips of scotch tape across doors and by covering doors with signs inferring "You're close, but you'd better start over again?" Is it necessary to make a transcontinental journey out of an interlibrary trip, or will the Institute take mature cognizance of the problem and take steps to solve it?

## ATTENTION UNDERGRADUATES

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## and Accessory Organs not Adversely Affected by Smoking Chesterfields

### FIRST SUCH REPORT EVER PUBLISHED ABOUT ANY CIGARETTE

A responsible consulting organization has reported the results of a continuing study by a competent medical specialist and his staff on the effects of smoking Chesterfield cigarettes.

A group of people from various walks of life was organized to smoke only Chesterfields. For six months this group of men and women smoked their normal amount of Chesterfields—10 to 40 a day. 45% of the group have smoked Chesterfields continually from one to thirty years for an average of 10 years each.

At the beginning and at the end of the six-months period each smoker was given a thorough

examination, including X-ray pictures, by the medical specialist and his assistants. The examination covered the sinuses as well as the nose, ears and throat.

The medical specialist, after a thorough examination of every member of the group, stated: "It is my opinion that the ears, nose, throat and accessory organs of all participating subjects examined by me were not adversely affected in the six-months period by smoking the cigarettes provided."



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